CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE

LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT

2018 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: SURVEY 15

STAFF:

Part A (9-23 August)	**Part B** (24 August – 9 September)
B Hatton (SIC)	B Hatton (SIC)
R Humphreys (2IC)	L Cox (2IC)
M Eade	R Humphreys
L Aislabie	L Aislabie
P White	K Duggan
R Beckett	C Bird
N Hampton	G Robson

Plus:

T Hull
E Fitton
M Bristow (University of East Anglia)
T Ehmen (University of Exeter)

DURATION: 9 August – 9 September

LOCATION: North Sea (ICES divisions IVa, b and c)

PRIMARY AIMS:

1. To carry out a groundfish survey of the North Sea (Figure 1) as part of the ICES coordinated IBTS, using a hybrid GOV trawl in order to obtain information on:
   a) Distribution, size composition and abundance of all fish species caught.
   b) Age – length distribution of selected species.
   c) Distribution of fish in relation to their environment.
   d) Distribution of macrobenthos and anthropogenic debris.
   e) Surface and bottom temperature and salinity data using ESM2 profiler/mini-CTD logger and Niskin Bottle.
   f) Length weight & maturity information using individual fish measurements, in support of the EU Data Regulation.

2. To carry out additional 'zero-minute' and associated 15 minute tows to investigate the potential catch during deployment and retrieval of hauls that may fall outside tow duration.

3. Collect surface sea water samples for Caesium/Tritium testing to be performed post-survey.

4. Retrieval of three unmanned underwater vehicles, deployment of a wave glider and zooplankton ring net sampling as part of the AlterEco project.

SECONDARY AIMS:

5. Tag and release specimens of starry smooth-hound *Mustelus asterias*, greater-spotted dogfish *Scyliorhinus stellaris,* spurdog *Squalus acanthias*, tope *Galeorhinus galeus*, common skate *Dipturus batis* species-complex, and blonde ray *Raja brachyura,* in support of the ICES Working Group for Elasmobranch Fishes work to inform on stock units for demersal elasmobranchs.

6. To freeze any unusual fish species for subsequent identification / verification in the laboratory, including specimens of eelpout (*Zoarces, Lycodes* and *Lycenchelys*), sea scorpions (Cottidae, sub-area IVa only), and any unusual fish species, which may also be used in otolith research.

7. To retain any dead specimens of tope (*Galeorhinus galeus*) and common skate (*Dipturus batis* species-complex) for biological studies.

8. Retain any dead specimens of shad and lamprey for biological studies.

9. Collect fisheries acoustic continuously data at four operating frequencies (38 kHz, 120 kHz, 200 kHz and 333kHz), using the Simrad EK60 split beam sounder. The data will contribute to the existing 15 year time series of acoustic data in the North Sea and will be used as part of the Defra funded project Poseidon (MF1112) to monitor changes in mackerel distribution and abundance.

10. Cetacean observations will be recorded where possible and sent to the Sea Watch Foundation.

11. Identification, count, measure and weight all jellyfish caught in GOV trawl will allow the continuation of the North Sea August Jellyfish dataset started in 2012; As the dataset grows from year to year, this should allow the evaluation of changes in jellyfish community and biomass with time.

12. Collect squid egg samples to map spawning grounds. This could be highly relevant in studying squid stock's structure.

13. To collect biological information from four-bearded rockling *Enchelyopus cimbrius*. Including length, weight & maturity information.

14. Collect suitable examples of benthic organisms from a select number of prime stations to test for Paralytic Shellfish Poisoning toxins. This is with a view to assessing ongoing presence and geographical extent of PSP following evidence of consumption from an unusual source on the East Anglian coastline.

15. Near bed water samples will be collected using a niskin at seasonally stratified sites. These data will be used in the assessment of eutrophication under MSFD and OSPAR for which near bed oxygen concentrations are an indicator.

16. Retain any dead specimens of *Loligo spp.* and approximately 25 *Alloteuthis* for maturity and age analysis, respectively.

PLAN:

RV Cefas Endeavour will sail from Lowestoft at approximately 06:00 on 9 August 2018 and proceed to stations in the southernmost North Sea as detailed in Figure 1 and start the IBTS survey at prime station 1. The survey will then continue northwards until docking in Aberdeen, on 22 August for a mid-survey staff change-over. The second half of the survey will sail from Aberdeen on the early morning of 24 August and the survey will continue and dock in Lowestoft on 9 September 2018.

GEAR:

List distributed and marked to relevant individuals for action. Briony Silburn for aim 1d, Jim Ellis for aims 5, 6, 7 & 8, Andy Moore for aim 8, Jeroen Van Der Kooij for aims 4 & 9, Sophie Pitois for aim 11, Vlad Laptikhovsky for aims 12 and 16, Louise Cox for aim 13, Andrew Turner for aim 14 and Naomi Greenwood for aim 15.

B Hatton
Scientist in Charge

DISTRIBUTION:

Survey participants +

B Silburn	A Turner
A Moore	V Laptikhovsky
G Burt	S Phillips
T Bailey	J Van Der Kooij
J Ellis	I Holmes
S Pitois	N Greenwood

Cefas MIST services

Figure 1: Fishing stations of IBTS North Sea Groundfish Survey